

THE UNIVERSITY OF THE STATE OF NEW YORK

Regents of the University

With years when terms expire

1917	ST CLAIR MCKELWAY M.A. LL.D. D.C.L. L.H.D.	
	<i>Chancellor</i>	Brooklyn
1914	PLINY T. SEXTON LL.B. LL.D.	<i>Vice Chancellor</i> Palmyra
1915	ALBERT VANDER VEER M.D. M.A. Ph.D. LL.D.	Albany
1922	CHESTER S. LORD M.A. LL.D.	----- New York
1918	WILLIAM NOTTINGHAM M.A. Ph.D. LL.D.	----- Syracuse
1921	FRANCIS M. CARPENTER	----- Mount Kisco
1923	ABRAM I. ELKUS LL.B. D.C.L.	----- New York
1916	LUCIUS N. LITTAUER B.A.	----- Gloversville
1924	ADELBERT MOOT	----- Buffalo
1925	CHARLES B. ALEXANDER M.A. LL.B. LL.D. Lit.D.	Tuxedo
1919	JOHN MOORE	----- Elmira
1920	ANDREW J. SHIPMAN M.A. LL.B. LL.D.	----- New York

President of the University
and Commissioner of Education

JOHN H. FINLEY M.A. LL.D.

Assistant Commissioners

AUGUSTUS S. DOWNING M.A. L.H.D. LL.D. *For Higher Education*

CHARLES F. WHELOCK B.S. LL.D. *For Secondary Education*

THOMAS E. FINEGAN M.A. Pd.D. LL.D. *For Elementary Education*

Director of State Library

JAMES I. WYER, JR, M.L.S.

Director of Science and State Museum

JOHN M. CLARKE Ph.D. D.Sc. LL.D.

Chiefs of Divisions

Administration, GEORGE M. WILEY M.A.

Attendance, JAMES D. SULLIVAN

Educational Extension, WILLIAM R. WATSON B.S.

Examinations, HARLAN H. HORNER B.A.

History, JAMES A. HOLDEN B.A.

Inspections, FRANK H. WOOD M.A.

Law, FRANK B. GILBERT B.A.

Library School, FRANK K. WALTER M.A. M.L.S.

Public Records, THOMAS C. QUINN

School Libraries, SHERMAN WILLIAMS Pd.D.

Statistics, HIRAM C. CASE

Visual Instruction, ALFRED W. ABRAMS Ph.B.

Vocational Schools, ARTHUR D. DEAN D.Sc.

University of the State of New York Bulletin

Entered as second-class matter August 2, 1913, at the Post Office at Albany, N. Y.,
under the act of August 24, 1912

Published fortnightly

No. 554

ALBANY, N. Y.

NOVEMBER 1, 1913

COURSE OF STUDY AND SYLLABUS

FOR

THE COLLEGE GRADUATE CERTIFI- CATES

REVISED BY THE UNIVERSITY OF THE STATE OF NEW YORK

July 1, 1912

UNDER ADVICE AND COOPERATION OF THE FOLLOWING COMMITTEE:

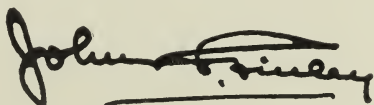
Prof. J. R. STREET Ph.D., Syracuse University, *Chairman*

Prof. HENRY SUZZELLO Ph.D., Columbia University

Prof. CHARLES DEGARMO Ph.D., Cornell University

AUGUSTUS S. DOWNING M.A. L.H.D. LL.D., Assistant Commissioner for
Higher Education

Approved December 11, 1913



President of the University and Commissioner of Education

INTRODUCTION

The course of study herein set forth is prescribed under authority of the Education Law, section 553(2) and Regents Rules, section 408c, for schools of education in colleges and universities. "School of education" means any teachers college or school of pedagogy, or the department of education in a university whatever the corporate title. The successful completion of the course of study entitles a student to the college graduate professional provisional certificate based upon the condition that the student shall be in good and regular standing for the B. A., B. S., B. L., Ph. B., M. A., M. S., or Ph. D. degree in a college or university registered under sections 401, 404, 408a, or 408b.

The purpose of the syllabus is to assist applicants in meeting the requirements for two grades of certificates, each of which is of two classes. These two grades are grouped both in order of importance and of historical sequence, the earlier and lower first; the later and higher second.

1 **The college graduate.** The two classes of this grade are the limited and the life.

a The limited. A certificate valid for two years is granted to the graduate of an approved college registered by the Regents under the sections enumerated above. This certificate is limited to teaching in high schools and in primary or grammar schools except in the primary or grammar grade of a city or village of 5000 or more inhabitants employing a superintendent of schools. It may be renewed for one year on application for indorsement, provided the holder has passed the prescribed examinations during the period of its validity. The prescribed examinations are in the theory and practice of education.

b The life. At the end of three years of successful experience in teaching, at least two years of which must be in this State, a college graduate certificate is issued, valid for life in any grade of any school.

2 **The college graduate professional.** The two classes of this grade are the provisional and the permanent.

a The provisional. This certificate is valid for three years in any grade of any school. It is issued, on application, to the graduate of any college registered under the sections enumerated above, provided the course in education approved by the Regents

C
N48uJ
no.554

for the training of teachers is successfully completed. It may be renewed by indorsement.

b The permanent. This certificate is issued to the holder of the provisional certificate only. The holder of a provisional certificate that affords evidence of three years' successful experience in teaching during the validity of the provisional certificate is entitled to receive a permanent certificate provided that at least two years of the experience was acquired in schools of New York State.

More detailed information regarding these certificates is given in Handbook 32 which also gives the lists of colleges and universities.

Registration and approval of college or university. The registration of a college or university is a formal act by the Regents of The University of the State of New York based on the recommendations of the President of the University.

If it appears that a college, university or professional school maintains approved standards of equipment and instruction and possesses resources at least equivalent to those prescribed by the laws of the State of New York, it may be registered by the Regents for the purpose of having its work recognized for professional licenses and for university credentials.

An educational institution desiring admission to or continuance on the roll of registration must file a written application giving the information requested in the form prescribed by the Regents. Such application must be on file at The University of the State of New York at least ten days before the meeting of the Regents at which action thereon is to be taken.

Application form 1 for the registration of a college or university can be obtained on application to the Assistant Commissioner for Higher Education.

Institutions without the United States and Canada are not formally recommended to the Regents for registration. The detailed record of each applicant is essential to determine what recognition may be accorded the degrees or licenses from the higher institutions or examining bodies of Europe and other countries.

The approval of the teachers training course lies with the President of the University. There are several prerequisite conditions to be met and requirements to be accepted by the college or university desiring the approval of its teachers training course, section 408 c,

1 The certification by the board of trustees to the President of

The University of the State of New York that a regular chair of pedagogy has been established in the college or university.

2 The formal adoption by the board of trustees of the professional course of study approved by the President of the University and the formal acceptance of its conditions and requirements. Evidence of the formal adoption and formal acceptance duly attested must be filed with the President of the University. The prescribed course is a minimum course and may be extended by the board of trustees.

3 The approved course of study shall be pursued during the last two years of the college course.

4 At the beginning of each year a list of the students registered for this course must be filed with the President of the University. At the close of the year the trustees must report the year's work and recommend the students entitled to receive the provisional certificate.

5 An inspection shall be made by the President of the University which shall include such examinations, preliminary, in course, or final, as may be prescribed to test the character of instruction and the capacity of the student.

The professional certificate is issued only on application of the candidate. The application must be made upon a blank furnished by The University of the State of New York which must contain a statement of the dean that the applicant has completed the course in education; has been regularly graduated from the college; is entitled to a registered degree; is of good moral character and is worthy to be employed in the public schools of the State. Further assurance is required that the applicant is under engagement to teach in New York State.

The examinations for the renewal of the limited certificates are held each year in May and in August. The May examinations are held in connection with the other professional licensing examinations of The University of the State of New York in Albany, Buffalo, New York and Syracuse and at other places designated from time to time by the University.

The August examinations are also held at the various colleges in the State where summer courses are conducted covering wholly or in part the course of reading in the principles of teaching based on the Syllabus for Schools of Education.

The subjects of these examinations are psychology, history of education, principles of education, methods of teaching—general and special.

The dates for the May and August examinations

MONTH AND YEAR	1911	1912	1913	1914	1915
May	25-26	16-17	22-23	21-22	27-28
August	15-16	15-16	14-15	13-14	12-13

DAILY PROGRAM	MORNING	AFTERNOON
<i>Day</i>	9.15	1.15
1st	Psychology	Methods
2d	Principles of education	History of education

Candidates desiring to enter any of these examinations should communicate with the University at least two weeks before the date set specifying the subjects in which they wish to be examined.

Course of study

The course of reading in the principles of teaching recommended as a preparation for the prescribed examination for the renewal of the limited certificate is included in the syllabus under the heading "Books for study."

The minimum course of study approved by the President of the University for the training of teachers in schools of education must include the following subjects and to satisfy the requirements of the statute the course must extend over a period of at least thirty-eight weeks:

Psychology — general and educational	90 hours
History of education and principles of education	90 hours
Methods of teaching	60 hours
Observation	20 hours

SYLLABUS

ON

- A Psychology: general and educational**
- B History of education**
- C Principles of education**
- D Method in teaching**

TO ACCOMPANY A COURSE OF READING FOR RENEWAL OF THE COLLEGE
GRADUATE CERTIFICATE LIMITED, AND TO FORM A BASIS
FOR THE TRAINING OF TEACHERS IN COLLEGES
AND UNIVERSITIES

A

PSYCHOLOGY

Introduction. A knowledge of psychological facts is fundamental to the comprehension of educational principles and to the development of the proper ways and means of instruction. The study of psychology therefore should concern itself fully as much with how its laws function in life as with the discovery of these laws and their organization into a science. For the purposes of this syllabus more attention must be given to the educational than to the scientific aspect. It is necessary however that the candidate first orient himself in the psychological facts. It is therefore suggested that he carefully familiarize himself with some general text on psychology, and for the purpose two are named below. He should then work himself topically through the psychological field, using a much wider reference than can be found in any one text.

This syllabus is designed to guide the candidate into a wise choice of topics and manner of treatment, and to point out the literature that may be profitably consulted. On each topic no superfluous references have been given. The candidate therefore will be held for a masterful knowledge of each of these topics and for a keen appreciation of their pedagogic import.

General psychology

Pillsbury. *Essentials of Psychology.* (Macmillan)

James. *Briefer Course in Psychology*

Educational psychology

Outlines of Educational Psychology. (Warwick)

Colvin. The Learning Process. (Macmillan)

It is further recommended that those candidates that are preparing the work without the guidance of an instructor make free use of Whipple's Questions on Psychology. (Bardeen)

Psychology. Its nature, scope and problems; its subdivisions and province of each as child, adult, normal, abnormal, descriptive, structural, dynamic, functional, biologic, human animal, comparative, genetic, individual, racial, social, physiological, experimental, and rational psychology. The bearing of each of these on the problems of education.

Reference

General literature on psychology.

The psychophysical organism. Mind and body and their relations; the cerebro-spinal and the sympathetic nervous system, structure and function of each; the brain and its structure and function; localization; spinal cord, its structure and function; reflex arc; the senses, their physiology and defects; modes of determining their condition; growth and its physiological changes and its laws.

References

Whittaker. The Anatomy of the Brain and Spinal Cord. (E. & S. Livingston, Edinburgh)

McKendrick and Snodgrass. The Physiology of the Senses. (Scribner)

Donaldson. The Growth of the Brain.

(Any good anatomy may be substituted for Whittaker)

Inherited forms of action. Heredity defined, its laws and the factors of heredity; the gifts of heredity; its limitations; heredity and physical and moral powers; heredity and race degeneracy; capacities, aptitudes and temperament; reflexes and automatisms; instinct, its nature and function; useful and harmful instincts; self-preservative instincts; group, social and sex instincts; adaptive and miscellaneous instincts; instincts and intelligence.

References

Davenport. Heredity in Relation to Eugenics

Kirkpatrick. Fundamentals of Child Study. (Macmillan)

Doncaster. Heredity in the Light of Recent Research. (Cambridge Press)

Jordan. The Heredity of Richard Roe. (Amer. Unitarian Assn. Press)

Sensation. Its nature, physical basis, classification, relation to the cognitive process.

Perception. Nature; basis and factors involved; its product; part in cognition; type of ideas produced; part in education; illusions, hallucinations, observation.

References

James. Principles of Psychology, ch. 2-6

Titchener. Outlines of Psychology, ch. 2-4

General principles of mental elaboration and organization

a Elaboration in general.

b Attention; definition; conditioning elements; kinds and classification; relation to mental processes; diffusion and its causes; child and adult attention; the training of attention; relation of attention to the process of teaching.

c Interest; its nature, origin, kinds; relation to social and mental activities; means of securing it; interest as the basis of instruction.

d Association of ideas; its meaning; laws; neural basis; its relation to imagination; to learning; subconscious association.

References

b Any good psychology, as James's Principles, v. 1, ch. 11. Ribot, Psychology of Attention (Open Court)

c Ostermann. Interest. (Kellogg)

DeGarmo. Interest and Education. (Macmillan)

d James. Principles of Psychology, ch. 14

Colvin. The Learning Process, ch. 11-13. (Macmillan)

Memory. Its general nature; physical basis; elements involved; retention and recall and their conditions; kinds of memory; growth conditions needful for good memory; how weakened.

References

James. Principles of Psychology, ch. 16

Kay. Memory, What It Is and How to Improve It. (Appleton)

Imagination. Its nature and importance; relation to memory; imitative nature; kinds; rôle in plays and games; its function in intellectual, scientific, esthetic and moral development, method and means of development.

References

School Review, Dec. 1898, p. 692-724

Halleck. Education of the Central Nervous System

Miller. The Psychology of Thinking, ch. 11-14. (Macmillan)

Conception. Nature; processes involved; the concept and classification; psychological and logical concepts; function of the concept in the process of thinking; content and extent of concept; language and thought; place of concept in teaching.

Reference

Miller. The Psychology of Thinking, ch. 15-17

Apperception. Its nature; processes involved; relation to the association of ideas, to mental growth, to illusions, to misinterpretations; its application in the arrangement of the subject matter in any course; apperception and observation; apperception and inference; apperception and the methods of teaching.

References

Rooper. Apperception. (Bardeen)

Du Bois. The Point of Contact. (Dodd)

Lange. Apperception. (Heath)

Judgment and reasoning

Nature of logic; nature of judgment; abstract nature of thought; function and value of logic; judgment and proposition; judgment and truth; judgment and experience.

Proportion and its elements; types of judgment; negation.

Inference, its nature; what it implies concerning experience; method and inference; inference and system; deductive and inductive inferences; analysis and synthesis.

Deduction, kinds and their values; syllogism and its laws and forms; dilemmas and fallacies.

Induction; its nature and presuppositions, methods of induction; canons of induction; fallacies of induction.

Relation of logic to educational theory, to method of teaching.

References

Dewey. How We Think

Miller. The Psychology of Thinking

The affective processes. Affective experiences in general; difference from cognition; affection, feeling; emotion, passion, mood, sentiment, temperament, and their distinction; pleasantness and unpleasantness; theories of origin of affective processes; functional significance.

Emotions. Definition; relation to instinct; theories of the emotions; classification; attributes of the emotions; factors determining their rise or decline; means of cultivation, emotions and education.

References

Angell. Psychology, ch. 13, 14, 18, 19

James. Principles of Psychology, ch. 24

Titchener. Primer of Psychology, ch. 4, 8, 12

For an extended treatment see Titchener, Lectures of the Elementary Psychology of Feelings and Attention. (N. Y. 1908)

Habit. Nature, physiological basis; psychological element; laws of habit; basis of formation; relation of habit to intellect; volition and conduct; important school habits; habit and character; importance of initial step in habit formation; habit and subject matter of instruction; habit and initiative; habit in theory of education.

Reference

Dexter & Garlich. Psychology in the Schoolroom, ch. 21-23. (Longmans)

Will and character. Volition, definition; its genesis; motives and will; inhibition and will; attention and will; impulse and will; habit and will; volition and perseverance; ideomotor life; will and emotional control; development of the will; types of willing; diseases of will; education of will; will in education.

References

Dexter & Garlich. Psychology in the Schoolroom, ch. 21-23. (Longmans)

Ribot. Diseases of Will

Payot. The Education of the Will. (Funk)

Development of motor ability. Physical bases of movement; psychical element; forms of movement as impulsive, involuntary, voluntary, initiative, reflex, sensory; coordination, suggestion and action; inhibition and its growth; purpose in activity and its development; growth of the sensory and the motor paralleled; play and manual training in education; method of acquiring adaptive activity, imitative activity, the value of expression to the idea. The industries in education.

References

O'Shea. Dynamic Factors in Education. (Macmillan)

Dopp. The Place of Industries in Elementary Education. (Univ. of Chicago Press)

Johnson. Education by Plays and Games

Curiosity, suggestion and imitation. Their instinctive nature, significance, rise and decline of interests; relation of curiosity to material and method of teaching; complementary nature of suggestion and imitation; universality of suggestibility; agents of suggestion as authority; association, repetition and imitation; positive and negative suggestion; definition of imitation; importance in mental development; difference between human and animal imitation; between child and adult imitation; forms of imitation as persistent, reflex, idealistic, dramatic, spontaneous, voluntary; imitation and personality. Significance of the psychology of these three for education.

References

- Royce. Century Magazine, May 1894, p. 202-22; 325-31; 449-63
 Sidis. Psychology of Suggestion. (Appleton)
 Frear. Imitation. Ped. Sem. v. 4

Adolescence. Period of life, physical changes, growth and adolescence, awkwardness, vitality of the period, pathological possibilities, brain and other physiological changes; psychical peculiarities, passions, mental imitations, interests, ideals, activities, criminal and ethical tendencies, dangers of the period, its pedagogy.

References

- Hall. Adolescence. 2 v. (Appleton)
 Street. Adolescence. Journal of Pedagogy, 15:1-2
 Any good book on child study

Fatigue. Its nature, physiology, symptoms, mental effects, methods of studying, results obtained, causes of fatigue, normal and abnormal fatigue; the school activities and fatigue; school organization and instruction and fatigue. The pedagogy of fatigue.

References

- Offner. Mental Fatigue
 Mosso. Fatigue. (Putnam)
 Claparede. Experimental Psychology, p. 209-320. (Longmans)

Special topics

1 The Hygiene of Instruction

References

- Claparede. Experimental Pedagogy
 La Fatigue Intellectuelle

2 Child study; its aims, methods and results

References

Key. The Century of the Child

Tanner. The Child. (Rand)

King. The Psychology of Child Development. (Univ. of Chicago Press)

Sully. Studies of Childhood. (Appleton)

3 Abnormal children and their education

References

Barr. Mental Defectives. (Blakiston)

Huey. Backward and Feeble-minded Children. (Warwick)

4 Comparative psychology

B

HISTORY OF EDUCATION

Requirements and recommendations

1 To insure completeness and relative emphasis, the candidate is expected to study a general textbook on the history of education, of which the two most highly recommended are Monroe's Text-book in the History of Education and Gross's History of Education.

2 For complete bibliography and for summary of historical interpretations and results the candidate is recommended to use a syllabus. The two that are likely to prove most helpful are Monroe's Syllabus of a Course of Study on the History and Principles of Education, and Aspinwall's Outlines of the History of Education.

3 Since the history of education is so great in extent, being the history of civilization from the standpoint of education, the student often tries to group the subject by the study of outlines, either in texts or syllabuses; but the knowledge so acquired is wholly inadequate, not only for use in education but even for the purpose of preparing for examination. In a preliminary study, however, some topics relatively unimportant may indeed be dismissed with the presentation that can be made in a textbook, but the more important ones should receive a much more detailed and careful study, first of original sources, when such are reasonable in compass and illuminating in character, and second of a few, at least, of the best expositions.

The topics selected for such extended study are as follows: (1) Greek education; (2) humanism, including its phases during the Reformation and the Counter-Reformation; (3) realism and science in education; (4) education according to nature; (5) the psychological movement; (6) the modern scientific, sociological and industrial movements.

In the outline which follows, a brief summary of the main points to be considered under such general head is given, while the references and sources are selected from Monroe's Syllabus. Much more extended references are given by both Monroe and Aspinwall.

Outline

(Note. The Cyclopedia of Education is a convenient and useful source of reference for most topics in the history of education.)

1 The evolution of education in primitive society

Education in relation to civilization. The history of education and universal history. The history of education and historical perspective. Education through the experiences of life. The transmission of experiences in primitive society. Methods of social control. Institutions as the embodiment of customs and ideals. The basis and beginnings of instruction in the family. The domination of institutions in primitive society.

Reference

Consult the textbook

2 Oriental education

Education in relation to the national ideal. Conservation of the social order and customs. Chinese education as typical. Characteristics of the Chinese social system. Education for civil service. Organization of the examination system. Political and social results.

Reference

Consult the textbook

3 Greek life and education

Contrast between eastern and western civilizations in respect to educational ideals and methods. The subordination and repression of the individual versus the liberation and development of personality. The Greek principle of life. Greek religion, art and the national games. Art and science. Aims in old

Greek education. Greek education in relation to Greek social organization. Sparta and Athens as types. The organization of the Athenian schools. Music and gymnastics. Tendency to individualism in Greek life and education. The new Greek education. The Sophists. Socrates, Plato and Aristotle. Philosophical schools and their permanent significance. Significance of the Alexandrian period. Education as the essence of Greek life. Emergence of the ideal of a liberal education.

References

- Sources:* Selections given in Monroe's Source Book
 Butcher. Some Aspects of Greek Genius. (Macmillan)
 Davidson. Education of the Greek People. (Appleton)
 — Aristotle and Ancient Educational Ideals. (Scribner)
 — History of Education. (Scribner)
 Mahaffy. Greek Life and Thought. (Macmillan)
 — Old Greek Education. (Harper)

4 Ideals and methods of Roman education

Comparison of the Roman national ideal with that of Greece. Ideals of Roman education as expressed in Roman social organization. Roman education and the characteristic Roman virtues. Conception of the practical value of education. Periods of Roman education. Hellenic influence. Organization of the Roman schools. The Roman *Humanitas*. Educational theorists. Cicero and Quintilian.

Reference

Consult the textbook

5 Education in the Middle Ages

Influence of Christianity on the progress of education. Contrasts between the classic and the medieval ideal of character. Abandonment of Greek and Roman principles of life and education. Rise of the Christian schools. The education of the cloister and the castle: monasticism and chivalry. The liberal arts. Mysticism. Life in the Middle Ages. The church as the instrument of education.

Reference

Consult the textbook

6 Scholasticism and the rise of the universities

Education as an intellectual discipline. Aims and methods of scholasticism. Greek philosophy in the service of the church.

Educational significance and value of scholasticism. Origin and growth of the universities. Their social and intellectual organization. Their influence in European civilization.

Reference

Consult the textbook

7 The Renaissance and the rise of humanism in Europe

The significance of the Renaissance for modern civilization. Its direct educational bearings. The humanistic conception of education. Da Feltra, Erasmus, Colet, Ascham, Melanchthon, Sturm. The relation of humanism to realism.

References

- Sources:* Robinson and Rolfe, Petrarch's Letters; Whitcomb, Source-book of Italian Renaissance, also Source-book of German Renaissance
Adams. Civilization during the Middle Ages, ch. 15. (Scribner)
Emerton. Mediaeval Europe, ch. 8. (Ginn)
— Desiderius Erasmus. (Putnam)
Seeböhm. The Oxford Reformers. (Longmans)
Symonds. The Renaissance in Italy. (Holt)
— The Revival of Learning, ch. 1-3, p. 239-98. (Holt)
Woodward. Education during the Renaissance. (Cambridge Univ. Press)

8 The Reformation and the Counter-Reformation

Educational significance of the Reformation. Luther, Melanchthon, Knox. The conception of religious education. Origin and constitution of the Jesuit schools. Merits and limitations. Effects of the laicization of the schools. Relation of the Reformation and Counter-Reformation to humanism.

References

- Adams. Civilization during the Middle Ages, ch. 16, 17. (Scribner)
Hughes. Loyola and the Jesuit System of Education. (Scribner)
Lourie. History of Educational Opinion since the Renaissance, ch. 3. (Macmillan)
Painter. Luther as an Educator. (Lutheran Pub.)
Quick. Educational Reformers. (Appleton)
Richard. Philip Melanchthon, the Protestant Preceptor of Germany. (Putnam)

9 Rise of realism and science in education

The humanistic and the realistic tendencies in education. Rise of realism and utilitarianism in education as opposed to humanism and culture. Verbal realism, Rabelais and Milton. Social

realism, Montaigne. Bacon and the inductive study of nature. Comenius. The educational theories of Comenius. The rise of the conception of method in instruction. The place of Comenius in the history of education.

References

- Sources:* Bacon, The Advancement of Learning; Novum Organum. Also Comenius, The Great Didactic; The Orbis Pictus
 Adamson. Pioneers of Modern Education, ch. 3. (Bacon); also ch. 4-6. (Cambridge Univ. Press)
 Lourie. John Amos Comenius. (Macmillan)
 — History of Educational Opinion from the Renaissance, ch. 2. (Macmillan)
 Monroe, W. S. Comenius and the Beginnings of Educational Reform. (Scribner)
 Quick. Educational Reformers, ch. 10. [Comenius]. (Appleton)

10 Education according to nature

Development of the conception of "natural" methods. Locke, Rousseau and Basedow. Rousseau and "education according to nature." Nature versus culture. Significance of the work of Rousseau.

References

- Sources:* Rousseau, Emile. (Appleton) A Dissertation on the Origin and Foundation of Inequality in Mankind; A Dissertation on the Effects of Cultivating the Arts and Sciences; the Social Contract
 Davidson. Rousseau. (Scribner)
 Lourie. Educational Opinion since the Renaissance. (Macmillan)
 Morley. Rousseau, v. 1, ch. 2, 3; v. 2, ch. 1, 3, 4, 6, 7. (Macmillan)
 Quick. Educational Reformers. (Appleton)

11 Development of modern educational theory (the psychological aspect)

a Pestalozzi. Life and writings. Educational ideas. Relation of his work to the modern elementary school. The permanent significance of his work.

b Herbart. Educational theories. Methodology. Permanent contributions to educational theory.

c Froebel. Life and writings. Educational principles. The kindergarten. Influence upon subsequent theory and practice.

References

- a* Pestalozzi
 Barnard. Pestalozzi and Pestalozzianism (contains extended translations from the works of Pestalozzi). (F. C. Brownell)

- Krüsi. Pestalozzi, His Life, Work and Influence. (F. C. Brownell)
 DeGuimps. Pestalozzi, His Aim and Work. (Bardeen)
 Pestalozzi. Leonard and Gertrude. (Heath)
 — How Gertrude Teaches Her Children. (Bardeen)
 Quick. Educational Reformers. (Appleton)
b Herbart
 Adams. Herbartian Psychology Applied to Education. (Heath)
 DeGarmo. Herbart and the Herbartians. (Scribner)
 Herbart. Science of Education. (Tr. by Filkin.) (Heath)
 — Outlines of Educational Doctrine. (Macmillan)
 Herbart Year Books, I to V. (Univ. of Chicago Press)
c Froebel
 Cole. Herbart and Froebel. (Teachers College)
 Froebel. Education of Man. (Appleton)
 — Pedagogics of the Kindergarten. (Appleton)
 — Education by Development. (Appleton)
 Hughes. Froebel's Educational Laws for All Teachers. (Appleton)
 Mac Vannel. Educational Theories of Herbart and Froebel. (Columbia Univ. Press)
 — & Thorndike. The Philosophy and Psychology of the Kindergarten. (Columbia Univ. Press)

12 Development of modern educational theory

The effects of the development of scientific conceptions on educational aims, values and methods. Comte and Spencer. The knowledge of most worth. Realism in the theory of Spencer. Development of the contemporary notion of education as social adjustment.

References

a Science in education

- Armstrong. The Teaching of Scientific Method. (Macmillan)
 Coulter. The Mission of Science in Education. *Science*, 2:12-28
 Eliot. The New Education. *Atlantic Monthly*, 23:1-8
 — The New Definition of the Cultivated Man. *Proceedings of the N. E. A.*, 1893, p. 46

Huxley. Science and Education. (Appleton)

Spencer. Education. (Appleton)

Youmans. The Culture Demanded by Modern Life. (Appleton)

b Sociological Tendency in Education

Addams. Democracy and Social Ethics. (Macmillan)

Dewey. School and Society. (Univ. of Chicago Press)

— The Child and the Curriculum. (See also especially his articles in the *Cyclopedia of Education*.) (Univ. of Chicago Press)

Hughes. The Making of Citizens. (Scribner)

Jenks. Education for Citizenship. (Holt)

Johnson. Social Aspects of Education (contains most of the important contributions on this subject). (Macmillan)

Vincent. The Social Mind and Education. (Macmillan)

13 Development of public education in the United States

The more important educational activities in colonial America. Character and influence of the academy in American education. The secondary school. Horace Mann and the common school revival. The normal school system. European influences in American education. The educational situation.

Reference

Consult the textbook

14 Modern tendencies in education

Medieval guilds and the liberation of the laborer. Effects of the Industrial Revolution. The social problem presented by the industrial and democratic type of society. Origin and growth of industrial education. Industrial training in Germany, France and England. Education demanded for individual and social efficiency in America.

References

- Carlton. Education and Industrial Evolution. (Macmillan)
- Dewey. School and Society. (Univ. of Chicago Press)
- Dean. The Worker and the State. (Century)
- Dopp. Place of Industries in Elementary Education. (Univ. of Chicago Press)
- Ely. Studies in Evolution of Industrial Society. (Macmillan)
- Proceedings of the National Society for the Promotion of Industrial Education. (20 West 44th st., New York City)
- Reports of the Massachusetts Commission on Industrial and Technical Education
- Snedden. The Problem of Vocational Education. (Houghton)
- Year Book (Eleventh) of National Society for the Study of Education, pt 1, 2. (Univ. of Chicago Press)

C

PRINCIPLES OF EDUCATION

Suggestions for reading

The outline given below merely indicates the scope of the preparation required in the principles of education, only the more important topics and a few of the best available references being indicated. For a simple and systematic treatment of the field of education in general, the beginner should carefully read (1) Thorndike's Education, a First Book (Mac-

millan) and (2) Ruediger's *Principles of Education* (Houghton), supplementing them (a) with parallel readings from other systematic treatments of the principles of education, such as Henderson's *Text Book in the Principles of Education* (Macmillan), and Bolton's *Principles of Education* (Scribner) and (b) with such other collateral readings as are indicated under the various topics given below. The student who wishes to make a more advanced study of the philosophy of education will find a more detailed guide in MacVannel's *Outlines of a Course in the Philosophy of Education* (Macmillan).

[Note. Dewey's *Philosophy of Education* (Macmillan) will appear subsequent to this publication and is recommended as a reference work.]

Outline

1 The function of a theory of education

Teaching as an art. Varied traditions and conflicting practices in education. The complexity of the work and the tendency toward partial views. The specialized scientific approaches: (1) physiology, (2) psychology, (3) sociology. Over-traditionalism and ultraradicalism. The need for a unifying theory or philosophy of education which will (1) relate and reconcile varied aims, values, conditions and procedures, and (2) provide standards for the measurement and improvement of methods and results. The practical or instrumental relation of theory in explaining and controlling practice.

References

- Dewey. *Relation of Theory to Practice in Education*. (Third Year Book. National Society for the Study of Education)
 O'Shea. *Education as Adjustment*, ch. 1-3. (Longmans)
 Royce. *Is There a Science of Education*. (Educational Review, January and February 1891)
 Ruediger. *Principles of Education*, ch. 1. (Houghton)
 Strayer. *Teaching Process*, ch. 19. (Macmillan)
 Thorndike. *Education*, ch. 11. (Macmillan)

2 The meaning of education

The presuppositions of education: (1) organism and (2) environment. Instinctive equipment of individual comparatively stable. Social aspects of environment constantly complicating. Increased need for readjustment between individual and world. Threefold nature of adjustment: (1) individual to environment; (2) environment to individual; (3) changing individual to chang-

ing environment. The various institutional forces which educate the individual. The school as the chief conscious means.

References

- Bagley. *Educative Process*, ch. 1. (Macmillan)
 Bolton. *Principles of Education*, ch. 1, 2. (Scribner)
 Henderson. *Text Book in the Principles of Education*, ch. 2. (Macmillan)
 Ruediger. *Principles of Education*, ch. 3. (Houghton)
 Strayer. *Teaching Process*, ch. 1. (Macmillan)
 Thorndike. *Education*, ch. 1. (Macmillan)

3 The biological foundation of education

The meaning of infancy as increased capacity for adaptation through education. The limits imposed on education by heredity. The theory of recapitulation. The nontransmissibility of acquired characteristics. Eugenics as the sole method of improving physical inheritance. Education provides a superior environment for selecting and training inherited tendencies. Individual variation.

References

- Bagley. *Educative Process*, ch. 2. (Macmillan)
 Bolton. *Principles of Education*, ch. 3, 7, 9, 11. (Scribner)
 Butler. *Meaning of Education*, p. 3-17. (Macmillan)
 Fiske. *Meaning of Infancy*, p. 1-43. (Houghton)
 Henderson. *Text Book in Principles of Education*, ch. 3, 6. (Macmillan)
 Ruediger. *Principles of Education*, ch. 2. (Houghton)
 Thorndike. *Education*, ch. 4, 5. (Macmillan)
 — Individuality, p. 1-52. (Houghton)

4 The psychological foundation of education

The functional character of mind. Reflexes, instincts, capacities and predispositions as unlearned tendencies. Interest, imitation, suggestion, and play as factors in mental development. Perception and apperception. Memory and habit in familiar situations. Thought in novel situations.

References

- Bagley. *Educative Process*, ch. 4, 8-11. (Macmillan)
 Bolton. *Principles of Education*, ch. 8, 12-27. (Scribner)
 Dewey. *How We Think*, pt 1-2. (Heath)
 Henderson. *Text Book in the Principles of Education*, ch. 5, 7-13. (Macmillan)
 James. *Talks to Teachers*, p. 1-106. (Holt)
 Miller. *Psychology of Thinking*, ch. 1-4. (Macmillan)
 Ruediger. *Principles of Education*, ch. 15, 16. (Houghton)
 Thorndike. *Education*, ch. 5, 6. (Macmillan)

5 The sociological foundation of education

The social nature of consciousness. The human or social environment as the most complex aspect of environment. Social ideals as an influence behind the increase of personal wants. Culture as social inheritance: (1) institutional, (2) esthetic, (3) literary, (4) scientific, etc. The varied institutions which transmit culture by the education of the individual: (1) family, (2) church, (3) vocation, (4) state, etc. School as a specialized institution for conscious education.

References

- Dewey. *School and Society*, ch. 1. (Univ. of Chicago)
Henderson. *Text Book in the Principles of Education*, ch. 4, 14. (Macmillan)
King. *Social Aspects of Education*, ch. 1, 2. (Macmillan)
Ruediger. *Principles of Education*, ch. 14. (Houghton)
Scott. *Social Education*, ch. 1, 5. (Ginn)

6 The school as a social institution

The school intermediates between the child and society. Its threefold function: (1) protection or conservation, (2) education, and (3) selection or distribution. Its functions are relative to social needs and the efficiency of other cooperating institutions. The most conscious and rational of the instruments for social control. Its special importance in a democracy. Its aims and values reflect social ideals and conditions. Each school method represents a double adaptation: (1) to social factors and (2) to psychological factors. The series extends from administrative methods, stressing external or social factors, to teaching methods, emphasizing internal or personal elements.

References

- Bloomfield. *Vocational Guidance of Youth*, p. 1-116. (Houghton)
Dewey. *School and Society*, ch. 3. (Univ. of Chicago)
Henderson. *Text Book in the Principles of Education*, ch. 14, 16. (Macmillan)
King. *Social Aspects of Education*, ch. 10-12. (Macmillan)
Snedden. *The Problem of Vocational Education*, p. 1-82. (Houghton)

7 The aims of school education

The need for a clear statement of aims. The progressive adjustment of the world and the individual as an ultimate general end. The need of numerous particularized aims. Their emphatic and complementary function. The special aims current

in present discussion: (1) knowledge, (2) discipline or skill, (3) culture, (4) happiness, (5) utility or practical efficiency, (6) service or social efficiency, (7) morality, (8) self-realization or complete living, (9) natural development, etc. The need for a relative and wholesome interpretation of each.

References

- Bagley. *Educative Process*, ch. 3. (Macmillan)
 Brown. *American High School*, ch. 2. (Macmillan)
 Cubberley. *Changing Conceptions of Education*, p. 1-68. (Houghton)
 Henderson. *Text Book in the Principles of Education*, ch. 1. (Macmillan)
 King. *Social Aspects of Education*, ch. 11, 12. (Macmillan)
 O'Shea. *Education as Adjustment*, ch. 4-8. (Longmans)
 Ruediger. *Principles of Education*, ch. 3-5. (Houghton)
 Thorndike. *Education*, ch. 2, 3. (Macmillan)

8 The Organization and administration of the school system

Relation of the public school to society and the state. Functions of various types of schools: (1) general, liberal or cultural schools, (2) vocational schools, (3) elementary, secondary and higher schools, (4) schools for special classes of children—defective, delinquent etc. The specialized functions of the school as a system: (1) methods of organization as a relatively stable or structural adjustment, (2) administrative methods as a relatively flexible or dynamic adjustment, and (3) supervision as an intermediating function relating to administration and teaching.

References

- Brown. *American High School*, ch. 1, 4, 7, 12, 13. (Macmillan)
 Cubberley. *Improvement of Rural Schools*, p. 1-73. (Houghton)
 Dutton & Snedden. *Administration of Public Education in the United States*, ch. 3-10, 14-17, 20-28. (Macmillan)
 Henderson. *Text Books in the Principles of Education*, ch. 17, 18. (Macmillan)
 King. *Social Aspects of Education*, ch. 3, 9. (Macmillan)
 Snedden. *Problem of Vocational Education*, p. 1-82. (Houghton)
 Thorndike. *Education*, ch. 13. (Macmillan)

9 The school as a social unit

The school's cooperative relations: (1) superintending staff, (2) school trustees or directors, (3) parents and teachers associations, (4) medical inspection, (5) playgrounds for children, (6) social centers for adults. The social composition of the

teaching population and the student population. The internal organization of the school's social life: (1) school government and discipline, (2) play and athletics, (3) societies, clubs and sociability, (4) personal relations of teacher and students, (5) classroom study as a social activity.

References

- Brown. American High School, ch. 10, 11. (Macmillan)
 King. Social Aspects of Education, ch. 4-8. (Macmillan)
 Perry. Status of the Teacher, p. 1-68. (Houghton)
 Scott. Social Education, ch. 3, 4, 6, 7. (Ginn)
 Thorndike. Education, ch. 12. (Macmillan)

10 The meaning of the course of study

The course of study an epitome of social experience to be rendered into personal experience. The two problems in its construction: (1) the selection and rejection of materials, and (2) gradation and classification. Two bases for selection: (1) sociological and (2) psychological. The child as the integrating or correlating factor among studies. Subjects as fundamental and valid social differentiations of the child's experience. The problem of educational values. Social, moral, esthetic, cultural and economic values. Intrinsic and instrumental values. Specific and disciplinary values. The election of studies.

References

- Bagley. Educative Process, ch. 13-15. (Macmillan)
 Bolton. Principles of Education, ch. 28. (Scribner)
 Brown. American High School, ch. 3. (Macmillan)
 DeGarmo. Principles of Secondary Education, pt 1. (Macmillan)
 Dewey. Child and the Curriculum, p. 7-40. (Univ. of Chicago)
 — Moral Principles in Education p. 1-58. (Houghton)
 Henderson. Text Book in the Principles of Education, ch. 10, 17, 18. (Macmillan)
 Palmer. Ethical and Moral Instruction in the Schools, p. 1-52. (Houghton)
 Ruediger. Principles of Education, ch. 6-13. (Houghton)
 Thorndike. Education, ch. 7, 8, 13. (Macmillan)

11 The nature of teaching methods

The function of teaching methods is to personalize social experiences, values and activities. They are psychological readjustments of subject matter to provide (1) stimulation, (2) modes of thought or expression, and (3) resulting satisfactions or dis-

satisfactions which will develop the child's capacities in useful directions. Four factors, each of which is capable of wide variation, condition the character of teaching methods: (1) the subject matter studied, (2) the child taught, (3) the ultimate social end in view, and (4) the teacher's immediate purpose. In this wide variation many types of lessons are readily distinguishable upon the basis of their emphatic elements: (1) developmental, (2) drill, (3) review, (4) assignment, (5) recitation, (6) practice, (7) demonstration, (8) induction, (9) deduction, (10) memorization, (11) study etc. These types of teaching or teaching movements are supplements rather than substitutes and occur in combinations of successive movements within the recitation period.

References

- Bagley. *Educative Process*, ch. 4-12, 16-23. (Macmillan)
 Betts. *The Recitation*, p. 1-118. (Houghton)
 DeGarmo. *Principles of Secondary Education*, pt 2. (Macmillan)
 Dewey. *School and Society*, ch. 2. (Univ. of Chicago)
 — *How We Think*, pt. 3. (Heath)
 Earhart. *Teaching Children to Study*, p. 1-175. (Houghton)
 McMurray. *How to Study*, pt 1-3. (Houghton)
 O'Shea. *Education or Adjustment*, ch. 9-14. (Longmans)
 Ruediger. *Principles of Education*, ch. 15, 16. (Houghton)
 Strayer. *Teaching Process*, ch. 2-12. (Macmillan)
 Thorndike. *Education*, ch. 6, 9, 10. (Macmillan)

D

MATTER AND METHOD IN TEACHING

The examination in matter and method in teaching will cover the two leading aspects of the subject, namely, (1) the general laws of method, and (2) the teaching of the several studies both as to matter and method as exhibited by our best manuals. Each of these aspects has a distinct literature, while many books on teaching combine in varying degrees the discussion of subject matter with that of general laws of method. The books named below are recommended for study and for reference. A single book for study will usually suffice.

1 The general laws of method

The chief topics to be considered under this head are as follows: The acquisition of knowledge at first hand and at second

hand; authority, observation and experiment as means for acquiring facts; scope and function of observation; rules for making an experiment decisive; application of apperception, attention and interest in acquiring knowledge; the problem as a device for focusing attention and securing educative thought; forms of solution — definition, course or effect, classification and generalization, nonmathematical and mathematical; Mill's five "methods" of determining cause or effect; the media of instruction — oral versus book teaching, lectures, catechisms, pictures, models, maps, diagrams; the use of "types" in organizing and teaching subject matter; development lessons, inductive and deductive; stages in the inductive approach — problem, facts, hypothesis, cause and effect, classification, generalization and application; stages in the deductive approach — anticipation, use of deduction in gaining new knowledge or insight, and application in deductive lessons; educational value of verification; heuristic methods; use and limits of analysis and synthesis in teaching and their distinction from induction and deduction; invention as a mode of thought; the aims and scope of laboratory work as a principle to be observed in all studies; drills, reviews and examinations.

Elementary

Books for study

Dewey. *How We Think*. (Heath)
 Strayer. *A Brief Course in the Teaching Process*. (Macmillan)

Books for reference

Adams. *Exposition and Illustration in Teaching*. (Macmillan)
 Bagley. *The Educative Process*. (Macmillan)
 Charters. *Methods of Teaching*. (Row, Peterson)
 Thorndike. *Education, a First Book*, ch. 9, 10. (Macmillan)

Secondary

Books for study

DeGarmo. *Principles of Secondary Education*, v. 2, *Processes of Instruction*. (Macmillan)
 Thorndike. *Principles of Teaching*. (Seiler)

Books for reference

Armstrong. *The Teaching of Scientific Method*. (Macmillan)
 Dewey. *How We Think*. (Heath)

2 Teaching the various studies

An examination will be required in at least two groups of subjects as given below. Each group is composed of related subjects taken from the curriculums of the elementary and second-

ary schools, with the exception of the foreign language group. Candidates who elect this group will be examined in only one language and in one other complete group, which the candidate may select. The questions for examination will relate both to subject matter and method as treated in the books recommended for study and reference.

Group 1 — English

1 Language lessons, their purpose, type and nature; word recognition, ways and means of accomplishing; oral versus visible recognition, the place and office of each; the psychology of learning to read; methods of teaching reading and the advantages and disadvantages of each, the alphabet method; phonic method, word-and-name method, sentence method; oral versus silent reading; the purpose and place of each; qualities of good reading, mechanical, mental; choice of reading material; the qualities of a good reading book; reciting and dramatization, their value as an aid to reading. Advanced reading; supplemental reading, means of developing expression. How to create the love of reading; spelling, how to teach it.

References

- Arnold. Reading, How to Teach It. (Silver, Burdett)
 Garlich. A New Manual of Method, ch. 9. (Longmans)
 Hucy. The Psychology of Reading.
 Hughes. Teaching to Read. (Barnes)
 Wallin. Spelling Efficiency, etc. (Warwick & York)

2 Grammar, its place in (a) elementary, (b) secondary schools; its relations to the other lines of English work; its justification, its aims; its means or methods; analysis and parsing; formal versus functional grammar; the content of grammar study; its educational value.

References

- Barbour. The Teaching of Grammar. (Ginn)
 Chubb. The Teaching of English. (Longmans)

3 Composition, reasons for its unsatisfactoriness; aims to be striven for in each grade; in each year of the high school; the principles underlying composition; materials for composition. Oral and written composition; transcription, reproduction etc.; place and function of each. Forms of discourse, and how to

treat each. Structures of composition as a whole; correlated with other studies, criticisms, conferences etc.

References

The many articles by S. Thurber, published in various magazines, should be consulted.

Bates. Talks on Writing English. (Houghton)

— The Teaching of English. (Longmans)

Chubb. The Teaching of English

4 Rhetoric, its place and function in linguistic study; when and how it shall be taught; various theories concerning the content; elementary and advanced rhetoric; induction and deduction in teaching rhetoric; the function of a text.

The above references and any good rhetoric, such as Thomas & Howe's Composition and Rhetoric.

5 Literature, its value as a subject of study; the chief end of teaching; appreciation; ways and means of developing the literary appreciation; types of poetry; types of prose and method of treatment of each; basis of choice of material; principles underlying the arrangement of course of study by years; the laws of method applied to English; reading as an aid to literary understanding and appreciation.

References

Bates. Talks on the Study of Literature. (Houghton)

Carpenter, Baker & Scott. Teaching of English, ch. 1, 2. (Longmans)

Chubb. The Teaching of English. (Longmans)

Corson. Aims of Literary Study. (Macmillan)

Haliburton & Smith. Teaching Poetry to the Grades. (Houghton)

Johnston. High School Education, ch. 11, 12. (Senbress)

MacMurry. Special Method in Literature and History

Thomas. How to Teach English Classics

A splendid collection of magazine references treating of all aspects of English teaching will be found in Johnston, p. 488-93

Thurber. Various articles found in the files of the School Review, Educational Review and The Academy

Wissler. The Interests of Children in Reading. Ped. Sun, 5:523-41

Group 2 — History

1 History in general

The functions of history: its aims and educational values. The relation of history to civics. Its correlation with geography and

other subjects. The chief periods of history and their relative value under varying circumstances. Order in which they should be taught. Importance to be ascribed to chronology. Methods of approach — biographical, topical, source method, intensive, extensive, study of types, oral narrative, textbooks, reading of historical treatises, use of globes, maps, pictures, outlines etc.

References

Bourne. The Teaching of History and Civics. (Longmans)

2 Elementary history

Aims of elementary history — interest in great personalities, in the common people of the past, the origin and development of ideas and institutions, the progress of inventions, the development of social disposition and knowledge in the pupil, development of the reproductive imagination, reasoning about the contingent, intelligent patriotism. Importance of American as contrasted with European history. Order of procedure through the grades. Arguments for and against the chronological order (see references 1 and 2 below). Oral treatment of history stories. Change of method with growing maturity of pupils.

3 Secondary history

Specific function of each of the four great blocks or periods of history — Ancient, Medieval and Modern, English and American. Should American history come early or late in the high school course; arguments for and against. Reasons for and against the short course in general history. Relative value of the various standpoints from which history may be viewed — military, constitutional, political, economic, industrial, literary. Methods of arousing historical interest; use of sources. Comparison of secondary history in American, German, and English schools. Types of mental training.

Elementary

Books for study

Johnson, H. The Problem of Adapting History to Children in the Elementary Schools
McMurray, C. Special Method in History. (Macmillan)

Secondary

Books for study

Bourne. The Teaching of History and Civics. (Longmans)
Report of the Committee of Five. (American Historical Association, 1911)

Books for reference

- Report of the Committee of Seven (1899). (Macmillan)
- Report of the Committee of Five (1911). (American Historical Association)
- Rice, McMurray, C. A. & F. M., Lawrence, Page. The Course of History in the Common School. (Found in the second year book of the National Society as above)
- Salmon. History: Suggestions as to Study and Teaching. (Macmillan)
- Some Principles in the Teaching of History. (First Year book of the National Society for the Scientific Study of Education. Chicago Univ. Press)

Books for reference

- Barnes, Mary Sheldon. Studies in Historical Method (the source method). (Heath)
- History Syllabus for Secondary Schools. Historical Sources in Schools. American Civil Government. An Outline Study for Secondary Schools. (Reports of three committees of the New England History Teachers Association)
- Keatinge. Studies in the Teaching of History (English conditions). (Macmillan)
- Mace. Method in History. (Ginn)
- Salmon. History: Suggestions as to Study and Teaching. (Macmillan)
- Vincent. Historical Research. An Outline of Theory and Practice.

Group 3 — Mathematics**1 Mathematics in general**

The functions of mathematical teaching; its aims and values. The relation of mathematics to other subjects. The various mathematical subjects; their relation to each other; their order of acquisition. The arrangement and development of each of the mathematical subjects. Various methods of presentation: topical, logical, psychological, concentric, spiral, synthetic, analytic, practical, deductive, inductive, heuristic, socratic, laboratory. Individual and class instruction. Objective work. Construction. Measurement and ratio. Application. Visual aids: models, apparatus, graphs etc.

References

- Smith. Teaching of Elementary Mathematics. (Macmillan)
- Young. Teaching of Mathematics in the Elementary and Secondary Schools. (Longmans)

2 Elementary mathematics

The aims of mathematical teaching in the grades. Arithmetic as the main content. Algebraic and geometric aspects. The standard for selection of materials. Distribution and arrangement. Incidental and formal instruction in the earliest grades. Logical and psychological types of procedure: (1) topical, (2)

spiral (concentric), and (3) mixed methods of development. Abstract and applied arithmetic; memorization and reasoning; the example and the problem. The fundamental combinations and their manipulation in complex series. Habituation and rationalization in computations. The use of special algorithms, oral forms, and written arrangements. Special methods for obtaining accuracy, independence and speed. Mental (oral) and written arithmetic. Objective teaching: its distribution; its materials (objects, pictures, diagrams, games). Inductive and heuristic teaching. The Perry movement. Practical arithmetic.

References

- McClellan & Dewey. Psychology of Number. (Appleton)
 McMurry. Special Method in Arithmetic. (Macmillan)
 Smith. Teaching of Arithmetic. (Teachers College, Columbia University)
 Suzzallo. Teaching of Primary Arithmetic. (Houghton)

3 Secondary mathematics

The aims of mathematical teaching in the high school. The mathematical subjects taught: algebra, plane geometry, solid geometry, trigonometry. The customary order of study. The simultaneous teaching of algebra and geometry. Correlation of mathematics and physics, geometry and drawing, trigonometry and geometry, algebra and arithmetic. The differentiation of mathematics for various classes of pupils. The use of definitions and axioms. The aims of teaching algebra. The topics included. The equation as the central topic. The function concept. Positive and negative numbers. The translation of symbols. Numerical aspects of algebra. Applied problems. Checks. Mechanical work. The aims in teaching geometry. Observational, inventional and analytic geometry. Measurement, drawing, construction and superposition as foundations for demonstration. Non-Euclidean and Euclidean geometry. Use of symbols. Experimental work. Applied geometry.

References

- Evans. Teaching of High School Mathematics. (Houghton)
 Myers. First Year Mathematics for Secondary Schools. (Univ. of Chicago)
 — Second Year Mathematics for Secondary Schools. (Univ. of Chicago)
 Smith. Teaching of Geometry. (Ginn)
 — Teaching of Elementary Mathematics. (Macmillan)
 Young. Teaching of Mathematics in the Elementary and Secondary Schools. (Longmans)

Elementary

McClellan & Dewey. Psychology of Number. (Appleton)
 McMurry. Special Method in Arithmetic. (Macmillan)
 Smith. Teaching of Arithmetic. (Teachers College, Columbia Univ.)
 Suzzallo. Teaching of Primary Arithmetic. (Houghton)

Secondary

Evans. Teaching of High School Mathematics. (Houghton)
 Myers. First Year Mathematics for Secondary Schools. (Univ. of Chicago)
 — Second Year Mathematics for Secondary Schools. (Univ. of Chicago)
 Smith. Teaching of Geometry. (Ginn)

Group 4 — Science**1 The teaching of science in general.**

The function of science teaching. Differing aims in the elementary and secondary schools. Nature study, geography and elementary science in the elementary school. Biology (botany, zoology, physiology), physics, chemistry and physiography (geography) in the secondary schools. Their relation to one another. Their order in the curriculum. Time allotment. Study by types and topics. Concentric (spiral) and topical procedures. The use of observation and experiment. Individual and class demonstrations. The laboratory. Use of manuals, text and notebooks. Observations and the inductive method. Laws or principles and the deductive method. Scientific teaching as order of discovery (heuristic), verification or inquiry, lectures, and recitations. Practical applications.

References

- Cooley. Science for Education. High School Bulletin 7. Univ. of the State of New York, p. 578-94
 Coulter. The Mission of Science in Education. Science, n. s. 12, p. 281-93
 Huxley. Science and Education. Collected Essays, v. 3. (Macmillan)
 Lloyd & Bigelow. The Teaching of Biology, ch. 1. (Longmans)
 McMurry. Special Method in Elementary Science, ch. 1, 2. (Macmillan)
 Smith & Hall. The Teaching of Chemistry and Physics in the Secondary School, p. 5-18. (Longmans)

2 The teaching of nature study in the elementary school

Special objects of the nature study movement. The relation of nature study to science teaching: physical science, biology, geography. Differences of attitude, method and content. The importance of first-hand contact with nature. The interpretation and the control of nature. Sentimental and scientific aspects of nature. Bird, insect and other animal study; plant study,

tree study, inanimate nature study. The uses of the school garden. Excursions and collections. Special devices: window box, terrarium, aquarium, museum. The improvement of the school grounds. Practical bearings of nature study on agriculture, horticulture, hygiene, and industry. Nature study, agriculture and the rural school problem. Correlations with art study and literature.

References

- Bailey. Nature Study Idea. (Macmillan)
 Coulter & Patterson. Practical Nature Study and Elementary Agriculture. (Appleton)
 Hodge. Nature Study and Life. (Ginn)
 Holtz. Nature Study. (Scribner)

3 The teaching of geography in the elementary school

Purpose of school geography teaching. The relation of geography to the other subjects; nature study, history, literature, arithmetic etc. Home geography as a method of approach. Early knowledge of world as a whole. The emphasis on continental work. The plan for teaching all continents twice; its modifications. Important methods: spiral or concentric; type study; "imaginary journey"; topical. The differing value of these in intermediate and grammar grades. The place of physical geography. Industrial and commercial aspects. Political and social aspects. The use of texts and supplementary readings. The use of visual aids: maps, globes, apparatus and illustrations. Modeling; map drawing; map filling; free-hand drawing; copying and memory work.

References

- Dodge. Teaching of Geography in Strayer's Teaching Process, p. 281-98. (Macmillan)
 Geikie. Teaching of Geography. (Macmillan)
 McMurry. Special Method in Geography. (Macmillan)
 Redway. New Basis of Geography. (Macmillan)
 Sutherland. Teaching of Geography. (Scott, Foresman)

4 The teaching of physics and chemistry in the secondary schools

The special purpose and value of the physical sciences. Extensive study covering both physics and chemistry versus intensive study of one or the other. Physics versus chemistry as the first course. The selection of materials. Various methods of arranging material: (1) nature study method, (2) theoretical

method, (3) historic-systematic. Extensive and intensive methods of instruction. Quantitative and qualitative work. Stages in general method: (1) observation of details, (2) generalization, (3) application, (4) approximate systematization of knowledge. Out of door science. Applied or industrial science. Experimental work: (1) lecture table demonstration, (2) individual, group and class laboratory work. Laboratory work as order of discovery, proof or personal investigation. The selection of experiments. The supervision of experimentation. Dangers of formal and mechanical work. The laboratory manual. The science notebook. The use of texts. Lectures, recitations and examinations.

References

Mann. Teaching of Physics. (Macmillan)

Smith & Hall. Teaching of Chemistry and Physics in the Secondary School. (Longmans)

5 The teaching of biology in the secondary school

The special value of biological instruction. Physical or biological sciences as first courses. A general biology course. Biological course based on human physiology. Separate courses in botany, zoology and physiology. The three-term plan. Separate courses with election. Relation of biology to physiology, hygiene and temperance instruction. Biology based on human physiology. Economic aspects of biology. Selection and arrangement of materials within courses: (1) merely descriptive and classificatory method; (2) study of types, (a) in order of evolutionary progression or (b) vice versa; (3) comparative study of plant type and animal type; (4) procedure by scientific divisions: morphology, physiology, classification and ecology; (5) the synthetic method with (a) a morphological or (b) a physiological emphasis. Emphasis on general ideas rather than details. Field work. The use of vivaria (terraria, aquaria). The use of the microscope. The laboratory book. The value of drawings and notes.

References

Ganong. Teaching Botanist. Revised. (Macmillan)

Lloyd & Bigelow. Teaching of Biology. (Longmans)

6 The teaching of physiography in the secondary school

Physiography as a secondary school study. Its relations to the other natural sciences. Its particular value as a first-year course in science. The emphasis on land forms and processes

versus that on human responses (economic, industrial, commercial etc.). The proper selection of materials and arrangement of topics. Treatments : (1) descriptive, (2) explanatory, (3) applied. The emphasis on causes and consequences. Field work. Laboratory work. Plottings and maps. Models. Lantern slides.

References

- Davis. Geographical Essays, ch. 1, 2, 4, 7. (Ginn)
 Proceedings N. Y. State Science Teachers Association, 1901. (Univ. of State of N. Y.)
 Report of Committee on Geography for Secondary Schools. (Jour. of Geog. March 1910)

Elementary

Nature study

- Bailey. Nature Study Idea. (Macmillan)
 Coulter & Patterson. Practical Nature Study and Elementary Agriculture. (Appleton)
 Hodge. Nature Study and Life. (Ginn)
 Holtz. Nature Study. (Scribner)

Geography

- Dodge. Teaching of Geography, in Strayer's Teaching Process, p. 281-97. (Macmillan)
 Geikie. Teaching of Geography. (Macmillan)
 McMurry. Special Method in Geography. (Macmillan)
 Redway. New Basis of Geography. (Macmillan)
 Sutherland. Teaching of Geography. (Scott, Foresman)

Secondary

Physics and chemistry

- Mann. Teaching of Physics. (Macmillan)
 Smith & Hall. Teaching of Chemistry and Physics in the Secondary School. (Longmans)

Biology

- Ganong. Teaching Botanist, revised. (Macmillan)
 Lloyd & Bigelow. Teaching of Biology. (Longmans)

Physiography

- Davis. Geographical Essays, ch. 1, 2, 4, 7. (Ginn)
 Proceedings N. Y. State Science Teachers Association, 1901. (Univ. of State of N. Y.)
 Report of Committee on Geography for Secondary Schools. (Jour. of Geog. March 1910)

Group 5 — Foreign languages

1 The teaching of foreign languages in general

Linguistic training—a means of intellectual and emotional control through adequacy of expression; the perception and expression of distinctions in thought, the “mastery of the word” with Greeks, Romans and Christians; aims of classical philology; the study of grammar as concrete introspection; value of grammar for appreciation and for composition; nature and limits of

grammar as an intellectual discipline; parts of grammar that train thought continuously and parts that are purely conventional; function of grammar in leading from primitive, to cultivated language sense. Literature—as a source of knowledge, in ancient and in modern foreign languages; literature as art; its function in revealing the inner life and consciousness of a people; misconceptions concerning the function of literature in foreign languages and their consequences in teaching; comparison of the present value of literature in ancient and in modern foreign languages.

2 Latin and Greek

History of these subjects in the schools since the Revival of Learning. Their present status in the following particulars: utility in linguistic training; as sources of literary appreciation; as means for developing power of expression in English, for making the meanings of words more precise, for enriching the vocabulary, and for interpreting the expressed thought of others. Advantages of ancient over modern languages in point of progressive yet surmountable difficulties they present to the student, thus training him to sustained effort. Degree of universality in linguistic discipline. The art of translation, as to its universality and necessity, and the methods by which it may be conducted. Relation of exercises in composition to the matter read. Needed changes in matter and method when Latin is begun in the grammar school.

Books for study

- Bennett & Bristol. The Teaching of Latin and Greek. (Longmans)
Hale. Aims and Methods in Classical Study. (Ginn)
The School for the Reform of Latin Teaching. Report of the First Meeting at Bangor. Contains conference reports on the working of the new method. (G. Bell & Sons, London)

References

- Abbott. Society and Policies in Ancient Rome. (Scribner)
— The Common People of Ancient Rome. (Scribner)
Atkinson. Dent's First Latin Book. (J. M. Dent & Co. London)
Hale. The Art of Reading Latin. (Ginn)
Lodge. The Vocabulary of High School Latin. (Teachers College)
Shorey. The Case for the Classics. (Controversial; contains extended bibliography on the debate concerning classical education.) (School Review, Nov. 1910)
Tolman. The Art of Translating. (Sanborn)

3 French and German

History of the use of these languages in modern education. Their utilitarian value in the United States, in Europe; their linguistic value as contrasted with Latin. Selection and grading of material in the high school, in grammar grades. Best age for beginning. Variation of method according to age of pupils. The natural or the translative method. The "reform method" with reference to pronunciation, grammar, conversational use of words learned and practice in reading, use of songs, etc. Modification of these methods recommended by the Committee of Twelve. Use of illustrative material. The graphophone as an aid.

Books for study

- Bahlsen. The Teaching of Modern Languages. (Ginn)
Breul. The Teaching of Modern Foreign Languages in Secondary Schools. (Macmillan)
Jespersen. How to Teach a Foreign Language. (Macmillan)
Report of Committee of Twelve on Modern Languages. (Contained in N. E. A. Report on College Entrance Requirements, 1899, and also issued separately by the U. S. Bureau of Education)

References

- Armstrong. Place of Modern Languages in American Education (illustrations from French). (School Review, Nov. 1911)
Bagster-Collins. The Teaching of German in Secondary Schools. (Macmillan)
Brebner. The Method of Teaching Modern Languages in Germany. (Macmillan)
Gouin. The Art of Teaching and Studying Languages. (Longmans)
Sauveur. Introduction to the Teaching of Living Languages. Pamphlet. (Jenkins)



3 0112 105869645